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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/332,103	06/14/1999	KENTARO YANO	8622868	2516

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EXAMINER

LAROSE, COLIN M

ART UNIT PAPER NUMBER

2623

DATE MAILED: 12/30/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/332,103

Applicant(s)

YANO ET AL.

Examiner

Colin M. LaRose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendments and Arguments

1. Applicant's arguments regarding claims 1, 2, and 7 (see page 10 of Paper 18) have been fully considered. However, the claims are still believed to be anticipated by Shimada as explained below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1-10 are rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent 5,795,082 by Shimada et al. ("Shimada").

Regarding claim 1, Shimada discloses a quantization method (figure 12) in which quantization processing is applied to data for first and second recording means (figure 5, C1 and C2: low- and high-density cyan) which record input image data in a plurality of gradations which belong to each of different gradations in substantially the same hue, comprising the steps of:

inputting multi-value level image data (S100, figure 12);

a first quantization step (S140, figure 12) of performing quantization of the image data input for the first recording means to data with a lower level than that of the input image data, the first quantization step performing the quantization by conducting error correction (column 13,

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lines 56-67 and figure 17: quantizing the image data into low density dots is done by error diffusion); and

a second quantization step (S120, figure 12) of performing quantization of the image data input for the second recording means to data with a lower level than that of the input image data, the first quantization step performing the quantization without conducting error correction (column 12, lines 40-47 and figure 15: quantizing the image data into high density dots is done by dithering),

wherein at least one of the first and second quantization steps performs quantization of the input image data to multi-value data with 3 or more levels, so that the corresponding one of the first and second recording means may record the image in a plurality of gradations (both quantization steps quantize the image data into one of 26 levels – as shown figure 18, the input image data is quantized from 256 levels to one of 26 levels of light dots and one of 26 levels of dark dots; that is, a 5x5 matrix of light and dark dots is generated for each value of input image data, wherein the number of each of light and dark dots ranges from 0 to 25),

wherein the first recording means records the image with lower density recording material than that used by the second recording means (i.e. first recording means uses light dots, and second recording means uses dark dots).

Shimada also discloses the corresponding apparatus and storage medium of claims 2 and 7, which are substantially the same in scope as claim 1.

Regarding claim 3, Shimada discloses the recording means are of an ink-jet system (e.g. figure 4).

Regarding claim 4, Shimada discloses the first and second recording means record the image with light and black (i.e. dark) ink ("C1" and "C2" in figure 5).

Regarding claim 5, Shimada discloses the size of the ink drop is controlled when the first and second recording means effect recording in a plurality of gradations (i.e. Shimada's recording means controls the size of the ink drops so that the drops are uniform as shown in figure 18).

Regarding claim 6, Shimada discloses the first and second recording means share a region in which both means effect recording while both raising recording levels (e.g. figure 18).

Regarding claims 8-10, Shimada discloses the first quantization uses error diffusion, and the second quantization uses dithering, as addressed above for claim 1.

Election/Restrictions

4. Newly submitted claims 11 and 12 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Claims 1, 2, and 7 are directed to a method, apparatus, and storage medium for performing quantization, whereas claims 11 and 12 are directed to a printing system and method of controlling a print head that utilizes quantization. Therefore, claims 1, 2, and 7 and claims 11 and 12 are related as subcombination and combination, respectively. Furthermore, the quantization step/means of claims 1, 2, and 7 are carried out via dithering and error diffusion for two different density inks to obtain multi-value data, whereas in claims 11 and 12, the quantization is carried out to define the size of dots for two different inks that do not necessarily have different densities.

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Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 11 and 12 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (703) 306-3489. The examiner can normally be reached Monday through Thursday from 8:00 to 5:30. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au, can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (703) 306-0377.


AMELIA M. AU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

CML

Group Art Unit 2623

18 December 2003